

REMARKS

Reexamination and reconsideration of the application as amended are requested. Support for describing each ultrasound-emitting surface as an ultrasound-emitting outer exposed surface in the amended claims is found, for example, from figures 1-9. Support for describing a transducer as having a plurality of planar transducer elements arranged to provide the transducer with an ultrasound-emitting surface which is substantially-entirely planar or includes at least a concave surface portion is found, for example, from paragraph [0029] of the specification which notes that planar transducer elements when tilted can be arranged to provide the ultrasound transducer with an ultrasound-emitting surface having at least a concave portion. Support for amended claim 31 is found, for example, from figure 10.

The examiner's rejection of claims 1-2, 4, 6 and 8 as "anticipated", under 35 U.S.C. 102, is respectfully traversed. The examiner rejects these claims as being unpatentable over Diederich (US 5,620,479). Claims 2, 4, 6 and 8 depend from claim 1.

Claim 1 requires that the third ultrasound transducer 122 have a plurality of planar transducer elements 130 arranged to provide the third ultrasound transducer 122 with an ultrasound-emitting outer exposed surface 128 which is substantially-entirely planar or includes at least a concave surface portion.

The examiner relies on the inner surface of the middle one of the single-tubular-element transducers 12 in figures 1-2 of Diederich for a surface having a concave surface portion. However, amended claim 1 requires the third ultrasound transducer to have a plurality of planar transducer elements (and not a single non-planar tubular transducer element as in Diederich) arranged to provide the third ultrasound transducer with an ultrasound-emitting outer exposed surface (and not an inner and non-exposed surface as in Diederich) which is substantially-entirely planar or includes at least a concave surface portion. Note that Diederich distinguishes between the inner and outer surfaces of his tubular transducers (see column 7, lines 23-35). Note also that the inner and non-exposed surface of Diederich can also be referred to as a back surface (see column 7, lines 57-59).

Concerning claim 2 which requires the first ultrasound transducer 118 to be disposed at the distal end 116, Diederich shows a first ultrasound transducer (the right-most one of the transducers 12 in figures 1-2) which is disposed proximate but not at the distal end.

The examiner's rejection of claims 31-34 as "anticipated", under 35 U.S.C. 102, is respectfully traversed. The examiner rejects these claims as being unpatentable over Manna (US 6,902,536). Claims 32-34 depend from claim 31.

Claim 31 requires the ultrasound medical system 910 to have a longitudinal axis 914 and a distal end 916 and to include an exposed first RF medical-treatment electrode 918 aligned substantially coaxially with the longitudinal axis 914 and an exposed ultrasound medical transducer 922 disposed longitudinally proximal or distal to the first RF medical-treatment electrode 918.

The examiner cites Manna for showing a first RF electrode 32 and an ultrasound medical transducer 62. Applicants respectfully disagree. Element 32 of Manna is defined by Manna to be an electrode member having a distal tip 44 which protrudes from the distal end of the sheath 38 forming an electrode (see column 7, lines 14-16). Manna defines the first RF electrode to be 44 and not 32. It is noted that proximal portions of electrode member 32 not electrically protected by the sheath would be covered with electric insulation so as not to expose the physician or the patient to an electric shock hazard during a medical procedure.

Claim 31 requires an exposed ultrasound medical transducer 922 whereas Manna discloses in figure 5 a covered ultrasound medical transducer 62. Claim 31 requires the first RF electrode 918 to be aligned substantially coaxially with the longitudinal axis 914 of the medical system 910 whereas Manna discloses in figures 3B, 5A, and 5B a first RF electrode 44 substantially offset from the longitudinal axis 48 of the medical system.

Concerning claim 33 which requires the ultrasound medical transducer 62 to be disposed longitudinally between the first and second RF electrodes 918 and 920, Manna's electrodes 44 and 46 are each disposed longitudinally distal to the ultrasound medical transducer 62 as each must protrude from the distal end of sheath 38 and the ultrasound medical transducer 62 is

disposed longitudinally proximal to the distal end of sheath 38 (see figures 5A and 5B and column 7, lines 14-16).

Concerning claim 34 which requires the first RF electrode 918 to taper to a tissue-penetrating edge, Manna's first RF electrode 44 is not shown to taper in figures 5A and 5B and Manna does not describe the first RF electrode 44 has tapering to a tissue-penetrating edge in column 8, lines 4-6 or anywhere else in his patent.

The examiner's rejection of claims 3 and 9 as "obvious", under 35 U.S.C. 103, is respectfully traversed. The examiner rejects these claims as being unpatentable over Diederich in view of Unger (US 5,558,092). Claims 3 and 9 depend from claim 1, and applicants' previous remarks concerning the patentability of claim 1 over Diederich are herein incorporated by reference.

Further concerning claim 3 which requires the ultrasound-emitting outer exposed surface of the third ultrasound transducer to be substantially-entirely planar, the examiner probably would allege that it would have been obvious to have used a planar transducer of Unger for the third ultrasound transducer of Diederich. Applicants respectfully would disagree. A planar transducer 12, 14 or 16 of figures 1 and 2 of Unger would not surround the catheter 12 of Diederich as do the transducers 16 of Diederich as is required by the design of Diederich. There is no motivation to somehow radically change the design of Diederich to accommodate a flat transducer between two catheter-surrounding tubular transducers when Diederich is designed to have a source of radiation, a drug, or a coolant be inserted in the lumen 14 of the catheter 12 (see column 6, lines 48-51). The purpose of Diederich requires all transducers to be tubular to surround the catheter. To use a planar transducer in Diederich for some minor reason as suggested by the examiner would be like putting a lead shield over a television screen to protect the viewer from possible harmful radiation which would defeat the purpose of a television set.

The examiner's rejection of claim 5 as "obvious", under 35 U.S.C. 103, is respectfully traversed. The examiner rejects this claim as being unpatentable over Diederich in view of Vitek (US 6,613,004). Claim 5 depends from claim 1, and applicants' previous remarks concerning the patentability of claim 1 over Diederich are herein incorporated by reference.

Further concerning claim 5 which requires the ultrasound-emitting outer exposed surface of the third ultrasound transducer to have a substantially-spherically-focused shape, the examiner alleges that it would have been obvious to have used the bowel-shaped transducer of Vitek for the third ultrasound transducer of Diederich. Applicants respectfully disagree. A bowel-shaped transducer 12 of figure 1 of Vitek would not surround the catheter 12 of Diederich as do the transducers 16 of Diederich as is required by the design of Diederich. There is no motivation to somehow radically change the design of Diederich to accommodate a bowel-shaped transducer between two catheter-surrounding tubular transducers. See also the remarks in the second previous paragraph.

The examiner's rejection of claims 7, 10-11, 13, 16-17, 19, 22-23, 25, and 30 as "obvious", under 35 U.S.C. 103, is respectfully traversed. The examiner rejects these claims as being unpatentable over Diederich in view of Makin (US 2003/0018266). Claim 7 depends from claim 1, and applicants' previous remarks concerning the patentability of claim 1 over Diederich are herein incorporated by reference. Claims 11 and 13 depend from claim 10, claims 17 and 19 depend from claim 16, and claims 23 and 25 depend from claim 22.

Claims 10, 16 and 22 each require three longitudinally-arranged ultrasound transducers each having a plurality of planar transducer elements arranged to provide each of the three ultrasound transducers with an ultrasound-emitting outer exposed surface which includes at least a concave surface portion, and applicant's previous remarks concerning claim 1 and the transducer element of Diederich being tubular and not planar and the concave surface portion of Diederich being an inner and non-exposed surface and not an outer exposed surface are herein incorporated by reference.

Claim 30 requires two longitudinally-arranged ultrasound transducers each having a plurality of planar transducer elements arranged to provide each of the two ultrasound transducers with an ultrasound-emitting outer exposed surface which includes at least a concave surface portion, and applicant's previous remarks concerning claim 1 and the transducer element of Diederich being tubular and not planar and the concave surface portion of Diederich being an

inner and non-exposed surface and not an outer exposed surface are herein incorporated by reference.

The examiner's rejection of claims 14, 20, and 26 as "obvious", under 35 U.S.C. 103, is respectfully traversed. The examiner rejects these claims as being unpatentable over Diederich in view of Makin and further in view of Vitek. Claim 14 depends from claim 10, claim 20 depends from claim 16, and claim 26 depends from claim 22. Claims 10, 16 and 22 each require three longitudinally-arranged ultrasound transducers each having a plurality of planar transducer elements arranged to provide each of the three ultrasound transducers with an ultrasound-emitting outer exposed surface which includes at least a concave surface portion, and applicant's previous remarks concerning claim 1 and the transducer element of Diederich being tubular and not planar and the concave surface portion of Diederich being an inner and non-exposed surface and not an outer exposed surface are herein incorporated by reference.

Further concerning claims 14, 20, and 26, each requires the ultrasound-emitting outer exposed surface of the three ultrasound transducers together in their entirety to have a substantially-spherically-focused shape, and applicants' previous remarks concerning the patentability of claim 5, which also requires a substantially-spherically-focused shape, over Diederich in view of Vitek are herein incorporated by reference.

The examiner's rejection of claims 28 and 29 as "obvious", under 35 U.S.C. 103, is respectfully traversed. The examiner rejects these claims as being unpatentable over Diederich. Claim 29 depends from claim 28.

Claim 28 requires one of two ultrasound transducers to have a plurality of planar transducer elements arranged to provide the one ultrasound transducer with an ultrasound-emitting outer exposed surface which is substantially-entirely planar or includes at least a concave surface portion, and applicant's previous remarks concerning claim 1 and the transducer element of Diederich being tubular and not planar and the concave surface portion of Diederich being an inner and non-exposed surface and not an outer exposed surface are herein incorporated by reference.

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Amendment

Inasmuch as each of the rejections has been answered by the above remarks and amended claims, it is respectfully requested that the rejections be withdrawn, and that this application be passed to issue.

Respectfully submitted,

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